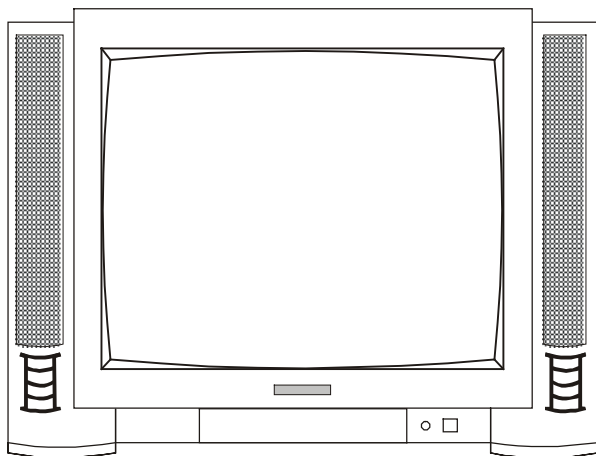




# SERVICE MANUAL



SANYO I<sup>2</sup>C CHASSIS

NTSC PAL M/N

SYSTEM COLOUR TELEVISION

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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## WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.

To prevent electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

## ELECTRICAL SPECIFICATIONS

Aerial Input Impedance.....	750hm unbalanced
Convergence.....	self-converging system
Focus.....	Electrostatic focus high bi-potential
Audio Power Output Rating.....	3WX2 at max
Picture IF.Freq.....	45.75MHz
Sound carrier Trap.....	41.25MHz
Power Source.....	110/220V AC 60HZ/50HZ
Power Consumption.....	120W
Speaker Size.....	Round DynamicX2pcs.
Sweep Deflection.....	Magnetic
Tuning Ranges.....	VHF-Channels 2-13
	UHF-Channels 14-83

### IMPORTANT SERVICE NOTES

Maintenance repair of this receiver should be done by qualified service

#### SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When serving the high voltage system, remove static charge from it by connecting a 10k ohm Resistor in series with an insulated wire (such as a test probe) between picture tube tag and 2<sup>nd</sup> anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatter-proof goggles and after discharging the high voltage completely.

#### X---RAY

This receiver is designed so that X---ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed:

1. When repairing the set in circuit, be sure not to increase the high voltage to more than 27.5kv, (at beam 0  $\mu$  A) for the set.
2. To keep the set in normal operation, be sure not to mark its function on 23.5KV $\pm$ 1.5KV (at beam 1000  $\mu$  A) in the case of the set. The set has been factory-adjusted to the above-mentioned high voltage.
  - ∴ If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
3. Do not substitute a picture tube with unauthorized types and/or brands which may cause excess x-ray radiation.

#### BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to mark
2. Inspect all protective devices such as non-metallic control knobs, insulating fish papers, cabinet backs, adjustment and compartment covers or shield, isolation resistor-capacity networks, mechanical insulators etc.

DESCRIPTION OF NEW CIRCUIT  
EXPLANATION OF REMOTE CONTROL IC OPERATION

(A) LC863432C-5M00 (CPU) /LC863432B-54C9

1-1 KEY CONT

PIN	Range of Voltage	KEY NAME	FUNCTION
KEYIN Pin13	$0V \sim 3/32V_{DD}$	OFF	No press key
	$4/32 V_{DD} \sim 7/32 V_{DD}$	AUTO	Auto-Search
	$8/32 V_{DD} \sim 11/32 V_{DD}$	TV/AV	TV/AV Switching
	$12/32 V_{DD} \sim 15/32 V_{DD}$	MENU	Menu key
	$16/32 V_{DD} \sim 19/32 V_{DD}$	VOL+	Volume increase
	$20/32 V_{DD} \sim 23/32 V_{DD}$	VOL-	Volume reduce
	$24/32 V_{DD} \sim 27/32 V_{DD}$	CH+	CH+ increase
	$28/32 V_{DD} \sim V_{DD}$	CH-	CH- reduce

1-2 MAXIMAL PROGRAM

The pinning of LC8634328 is given in the figure below and is based on LC8634328-5M00 microcomputer.

EEPROM MODEL			AT24C08
Maximal Program			181

1-3 POWER CONTROL

PIN	POWER ON	POWER OFF
Pin23(POWER)	0	1

1-4 DVD CONTROL

PIN	DVD OFF	DVD ON
Pin36(DVD)	0	1

1-5 AV CONTROL

a)、ONE AV INPUT

PIN	TV	AV
Pin34(AV1)	0	1
Pin33(AV2)	0	1

b)、TWO AV INPUT

PIN	TV	AV1	AV2
Pin34(AV1)	0	0	1
Pin33(AV2)	0	1	1

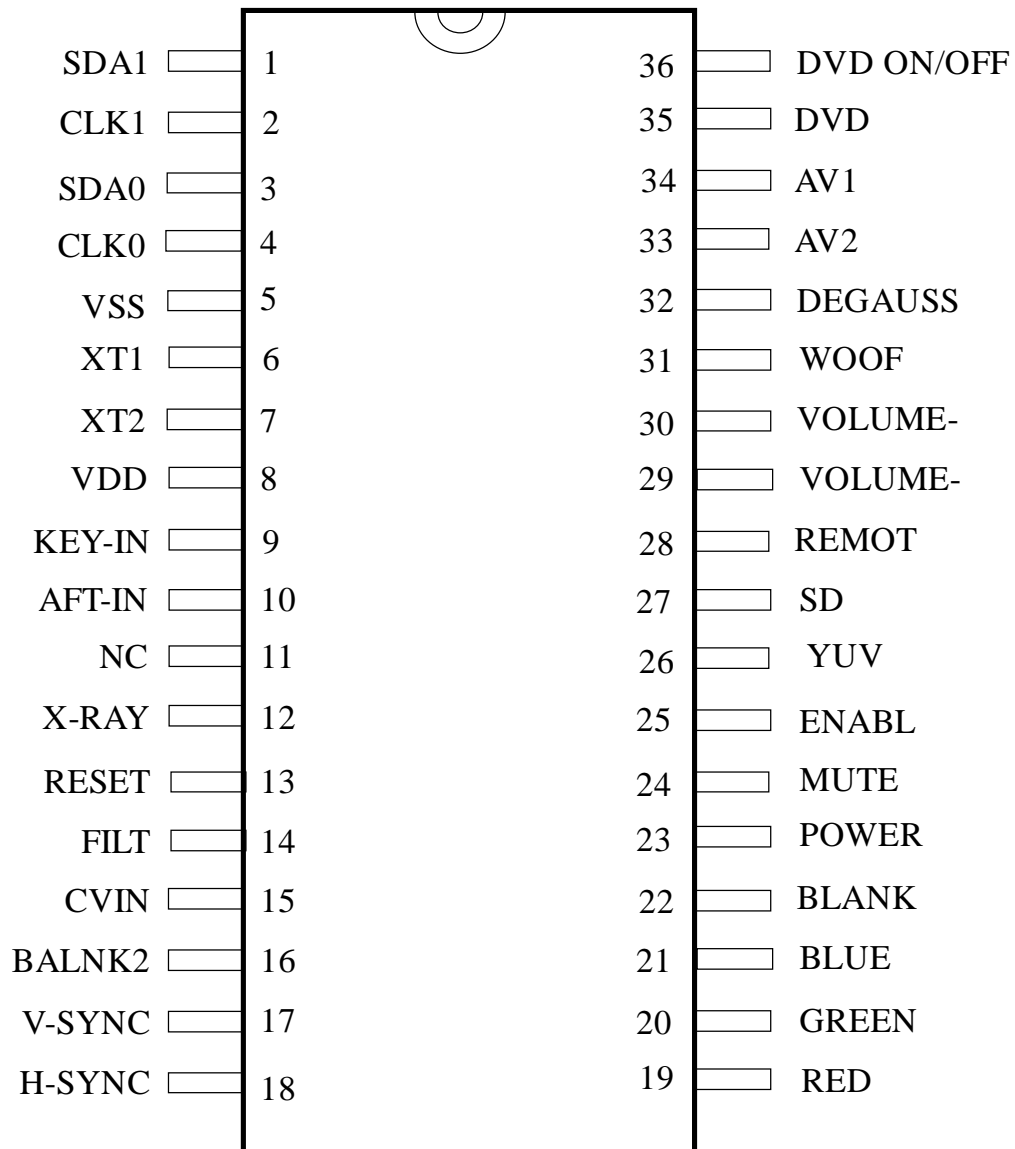
c)、THREE AV INPUT

PIN	TV	AV1	AV2	AV3
Pin34(AV1)	0	1	0	1
Pin33(AV2)	0	0	1	1

1-6 50/60 CONTROL OUTPUT

PIN	50	60
Pin35(50/60)	0	1

1-7 LC863432C Pin Connection(top view)



## 1-8 CPU Pin Arrangement

No.	PIN	FUNTION	No.	PIN	FUNTION
1	P10/SDA0	SDA1	19	R	R OUT
2	P11/SCLK0	CLK1	20	G	G OUT
3	P12/SDA1	SDA0	21	B	B OUT
4	P13/PCLK1	CLK0	22	BL	BLANK
5	VSS	VSS	23	P31	POWER
6	XT1	XTAL1	24	P32	MUTE
7	XT2	XTAL2	25	P70/INT0	ENABLE
8	VDD	VDD	26	P71/INT1	YUV
9	P04/AN4	KEY IN	27	P72/INT2	SD
10	P05/AN5	AFT IN	28	P73/INT3	REMOTE
11	P06/AN6	NC	29	P14/PWM1	VOL-R
12	P07/AN7	X-RAY	30	P15/PWM2	VOL-L
13	RESET	RESET	31	P16/PWM3	WOOF
14	FILT	FILT	32	P17/PWM	DEGAUSS
15	P33		33	P00	AV2
16	P30		34	P01	AV1
17	VS	V-SYNC	35	P02	DVD TRIGGER(50/60)
18	HS	H-SYNC	36	P03	DVD OFF/ON

## 1.9 ITEM OF SETUP

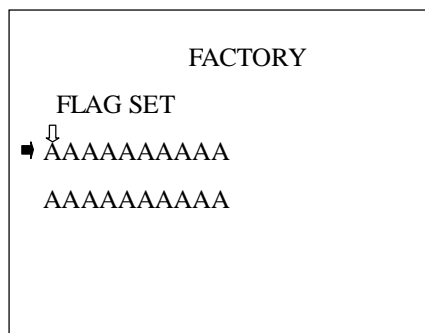
1	OSD Display	SET 0 STATE	Set 1 "STATE
2	POWER OPT	"0": Enter standby mode after power is applied.; "1": Last power state; "2or3": Last power state.	
3	POWER FLAG	NO factory display on screen when power on	Factory display on screen when power on
4	SEARCH CHECK	NO SEARCH CHECK	Search check when power on
5	SEARCH SPEED	Normal tune speed	Fast tune speed
6	BAND OPT	Selection IC LA7910	Selection tune of switch
7	CHANNEL MAX	See 1-2(page 4 )	
8	AV OPT	See 1-5(page 4 )	
9	POS. L/R	Screen display will be on at the upper left.	Screen display will be on at the upper right.
10	BLUE BACK	NO BLUE BACK	BLUE BACK
11	BLACK BACK	NO BLACK BACK	BLACK BACK
12	H-KILL OPT	No kill horizontal sync when transfer.	kill horizontal sync when transfer.
13	AKB P.MODE	No control picture when horizontal raster/normal picture transfer.	Control picture when horizontal raster/normal picture transfer.
14	STEREO OPT	Stereo disable	Stereo enable
15	STEREO IC	NO used stereo IC:TA1216	used stereo IC:TA1216
16	WOOF/H.PHONE	Woofer installed	Phone installed
17	WOOF VOL.OPT	Woofer volume control	No woofer volume control
18	SIF 4.5M OPT	M system (4.5MHz) disable	M system (4.5MHz) enable
19	SIF 5.5M OPT	B/G system (4.5MHz) disable	B/G system (4.5MHz) enable

20	SIF 6.0M OPT	I system (4.5MHz) disable	I system (4.5MHz) enable
21	SIF 6.5M OPT	D/K system (4.5MHz) disable	D/K system (4.5MHz) enable
22	SIF AUTO OPT	No auto sound system detecting	Auto sound system detecting
23	PAL OPT	PAL system disable	PAL system enable
24	N3.58 OPT	N3.58 system disable	N3.58 system enable
25	N4.43 OPT	N4.43 system disable	N4.43 system enable
26	SECAM OPT	SECAM system disable	SECAM system enable
27	COL-AUTO OPT	NO auto color system detecting	Auto color system detecting
28	IC TEST	NORMAL "0"	


## 1-10 SET OF FACTORY MARK

10.1 Set of factory mark display on screen of tube when power on..

- Press PROD key of remote control unit into FACTORY state.
- Press VOL- key of remote control unit until volume reduce to "0", continue press VOL- key and at same time press CH- key of remote control unit, can be into set of factory mark state. Display on screen see under figure.

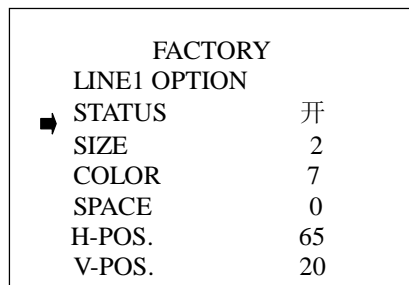


10.2 Press CH $\pm$  key for sleet line. Press VOL $\pm$  key for every word of line. Press PP key of remote control unit to next word of same line.

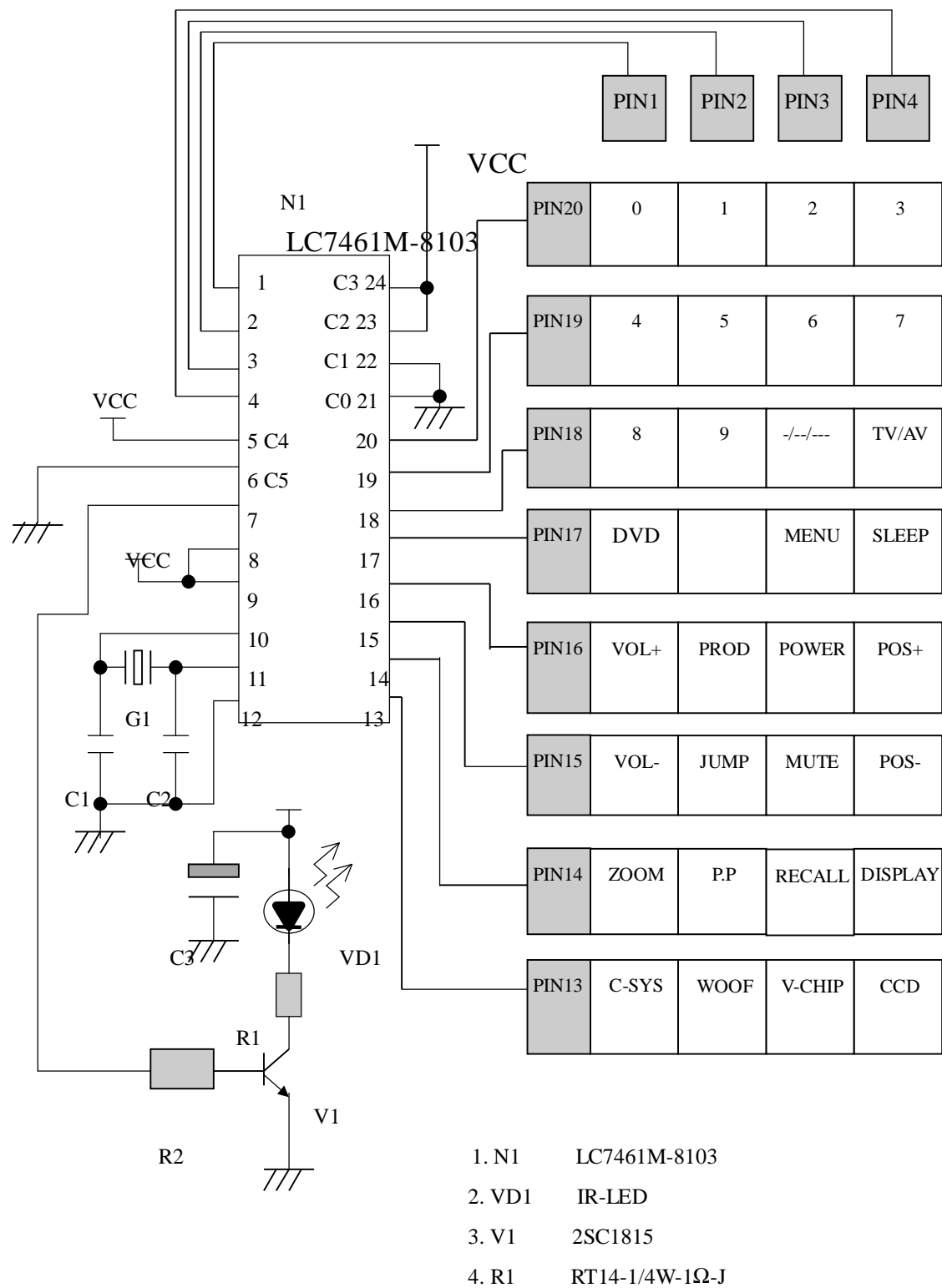
- Press VOL $\pm$  key to choose word of on screen display, when display on screen is , you can't see any thing's on screen by power on.

### 10.3 SET OF FACTORY MARK OF FIRST LINE

Press REVIEW key of remote control unit into set item of first line. Press CH $\pm$  key into set of next item. Changes set state by press VOL $\pm$  key.



## 1-11.ECTRICAL SCHEMATIC DIAGRAM



User code:

C5 C4 C3 C2 C1 C0  
0 1 1 1 0 0

5. R2 RT14-1/4W-220Ω-J

6. C1 C2 CT1-05B-2B4-63V-220PF-K

7. C3 CD110X-6.3V-100UF-M

8. G1 455KHZ

9.VCC 2 pcs. AA batteries

Infrared remote control unit for service code:

C5	C4	C3	C2	C1	C0
1	1	1	1	0	1

Infrared remote control unit for use code:

C5	C4	C3	C2	C1	C0
0	1	1	1	0	0

Infrared remote control unit for users:

	Pin1	Pin2	Pin3	Pin4
Pin20	0	1	2	3
19	4	5	6	7
18	8	9	--	TV/AV
17	NICAM	AUDIO		WOOF
16	VOL+	PROD	MUTE	CH+
15	VOL-	CHANNEL	POWER	CH-
14	PICTURE	PP	REVIEW	CALL
13	SLEEP	CLOCK	PRESET	SYSTEM

## LA76818 PIN ARRANGEMENT AND FUNTION

No.	FUNCTION	NO.	FUNCTION
1	Audio Output	28	Flyback Pulse Input
2	FM Output	29	VCO IREF
3	PIF AGC	30	Clock 4MHZ Output
4	RF AGC Output	31	CCD Vcc
5	PIF Input 1	32	CCD Fiter
6	PIF Input 2	33	CCD/ Horizontal Ground
7	IF Ground	34	SECAM B-Y Input
8	IF Vcc	35	SECAM B-Y Input
9	FM Filter	36	Chroma APC2 Filter
10	AFT Output	37	Clamp Filter
11	Bus Data	38	4.43MHZ Crystal



12	Bus Clock	39	Chroma APC1 Filter
13	ABL	40	Selected Video Output
14	Red Input	41	Video /Vertical /Bus Ground
15	Green Input	42	External Video Input(Y-IN)
16	Blue Input	43	Video/Vertical Vcc
17	Fast Blanking Input	44	Internal Video Input(C-IN)
18	RGB Vcc	45	Black Lever Detector
19	Red Output	46	Video Output
20	Green Output	47	VCO Filter
21	Blue Output	48	VCO Coil 2
22	Fsc output or c_sync output	49	VCO Coil 1
23	Vertical Output	50	APC Filter
24	RAMP ALC Filter	51	Ext.Audio Input
25	Horizontal /Bus Vcc	52	SIF Output
26	Horizontal AFC Filter	53	SIF APC Filter
27	Horizontal Output	54	SIF Input

## SERVICE ADJUSTMENT

### 1. Adjustment +B Voltage RP551

1.1 Test point----- Two point of C561

1.2 Adjust RP551 so that the voltage (DC) becomes:

14	110V(CHAI HONG Tube)
21"	110V(CHAI HONG Tube)
25"	125V/130V(CHAI HONG Tube/HUA FEI Tube)
29"	125V(CHAI HONG Tube)

### 2. Adjustment of AFT: T101

2.1 Connect signal generator to the test point C101

CW.....38MHz/38.9MHz 80db

2.2 Connect digital voltmeter on point of R113 and R114.

2.3 Adjust T101(PIF detector coil) so that the detection output voltage(DC) becomes  $3.6 \pm 0.02V$ .

### 3. Adjustment of RF-AGC

3.1 Receive Philips pattern signal.

3.2 Sweep output ..... $62 \pm 1db$

3.3 Connect digital voltmeter on point TP-A.

3.4 Press PROD key of remote control unit into ADTUST state.

3.5 Press CH $\pm$  key until adjustment item becomes RF—AGC. Press VOL $\pm$  key of remote control unit so that voltage of digital voltmeter display becomes  $5.5 \pm 0.1V$

3.6 Press PROD key of remote control unit until normal.

### 4. Adjustment of Vertical size

4.1 Receive Philips pattern signal(PAL system).

4.2 Press PROD key of remote control unit into ADTUST state.

4.3 Press CH $\pm$  key until adjustment item becomes V.SIZE. Press VOL $\pm$  key of remote control unit so that vertical over scan is at 8%.

4.4 Receive Philips pattern signal(NTSC system) in AV state.

4.5 Press CH $\pm$  key until adjustment item becomes NT.V.SIZE. Press VOL $\pm$  key of remote control unit so that vertical over scan is at 8%.

4.6 Press PROD key of remote control unit until normal.

## 5. Adjustment of Vertical center

- 5.1 Receive Philips pattern signal (PAL system).
- 5.2 Press PROD key of remote control unit into ADTUST state.
- 5.3 Press CH $\pm$  key until adjustment item becomes V.POSI . Press VOL $\pm$  key of remote control unit so that vertical center of picture comes mostly close to the geometrical center of CRT.
- 5.4 Receive Philips pattern signal (NTSC system) in AV state.
- 5.5 Press CH $\pm$  key until adjustment item becomes NT.V.POSI.. Press VOL $\pm$  key of remote control unit so that vertical center of picture comes mostly close to the geometrical center of CRT.
- 5.6 Press PROD key of remote control unit until normal.

## 6. Adjustment of Vertical line

- 6.1 Receive Philips pattern signal (PAL system).
- 6.2 Press PROD key of remote control unit into ADTUST state.
- 6.3 Press CH $\pm$  key until adjustment item becomes V.LINE . Press VOL $\pm$  key of remote control unit so that vertical line of picture comes mostly close normal.
- 6.4 Receive Philips pattern signal (NTSC system) in AV state.
- 6.5 Press CH $\pm$  key until adjustment item becomes NT.V.LINE . Press VOL $\pm$  key of remote control unit so that vertical line of picture comes mostly close normal.
- 6.6 Press PROD key of remote control unit until normal.

## 7. Adjustment of Sign horizontal/vertical positioning

- 7.1 Receive Philips pattern signal (PAL system).
- 7.2 Press PROD key of remote control unit into ADTUST state.
- 7.3 Press CH $\pm$  key until adjustment item becomes OSD.H.POSI. Press VOL $\pm$  key of remote control unit so that title sign of on screen ADJUST at horizontal center of Philips pattern signal.
- 7.4 Press CH $\pm$  key until adjustment item becomes OSD.V.POSI. Used VOL $\pm$  key of remote control unit so that sign of on screen ADJUST in title block of Philips pattern signal.
- 7.5 Press CH $\pm$  key until adjustment item becomes OSD.CONT. . Press VOL $\pm$  key of remote control unit so that OSD contrast can be seed clear.
- 7.6 Press PROD key of remote control unit until normal.

## 8. Adjustment of background

- 8.1 Receive white pattern signal.
- 8.2 Press PROD key of remote control unit into B/W adjustment state.
- 8.3 Press CH $\pm$  key until adjustment item becomes S-BRI (see under table). Press VOL $\pm$  key of remote control unit so that adjustment title becomes start status.

NAME	RANGE	START STATUS
S-BRI	0--127	20 START
R-BIA	0--255	20 START
G-BIA	0--255	20 START
B-BIA	0--255	20 START
R-DRI	0--127	60 START
G-DRI	0--15	8 START
B-DRI	0--127	60 START
C.B/W		0

- 8.4 Press MUTE key of remote control unit for service so that horizontal raster on screen of tube. Turn

- SCREEN of FBT. Counter clockwise until horizontal raster of either of three colors R.G. and B Appears slightly on CRT. Here, one of the three colors appears as screen control is turned.
- 8.5 Adjust bias controls (two of R-BIA, G-BIA, B-BIA) other than that belonging to displayed color to make white the horizontal raster.(under white the horizontal raster state, “2” and “3” // “4” and “5” // “6” and “7” key of remote control unit can be in crease and in reduce for R-BIA G-BIA B-BIA .
- 8.6 Press NUTE key on infrared remote control unit to picture normal state. Press CH $\pm$  key until adjustment item becomes C.B/W, press VOL $\pm$  key of remote control unit until becomes 2. Press CH $\pm$  key until adjustment item becomes S-BRT, press VOL $\pm$  key of remote control unit until becomes 99. Adjustment R.DRI/ G.DRI/ B.DRI until picture becomes white by press CH $\pm$ , VOL $\pm$ key.
- 8.7 Press PROD key of remote control unit until normal.

## 10. ADJUST ITEM/SETUP ITEM TABLE

### 1) 10.1(LC863420C-5M00) SETUP ITEM(MENU0)

Item	Name	Descriptions
0	H.PHASE	Ranges: 0~31
1	V.SIZE	Ranges: 0~127
2	V.LINE	Ranges: 0~31
3	V.POSITION	Ranges: 0~63
4	V.SC	Ranges: 0~31
5	H.PHASE(50)	Ranges: -7~+8 (Available for NTSC-M and PAL-M/N)
6	V.SIZE(50)	Ranges: -31~+32 (Available for NTSC-M and PAL-M/N)
7	V.LINE(50)	Ranges: -7~+8 (Available for NTSC-M and PAL-M/N)
8	V.POSI. (50)	Ranges: -31~+32 (Available for NTSC-M and PAL-M/N)
9	V.SC(50)	Ranges: -7~+8 (Available for NTSC-M and PAL-M/N)

### 2) ADJUSTMENT ITEM (MENU1)

Item	Name	Descriptions
0	RFAGC	Ranges: 0~63
1	VOLUME OUT	Ranges: 0~127
2	R-Y/B-Y G.BL	Ranges: 0~15, Generally it is set on “8”.
3	R-Y/B-Y ANG.	Ranges: 0~15, Generally it is set on “8”.
4	B-Y DC LEVEL	Ranges: 0~15, Generally it is set on “8”.
5	R-Y DC LEVEL	Ranges: 0~15, Generally it is set on “8”.
6	YUV B-Y DC	Ranges: 0~15, Generally it is set on “8”.
7	YUV R-Y DC	Ranges: 0~15, Generally it is set on “8”.

### 3) ADJUSTMENT ITEM (MENU2)

Item	Name	Descriptions
0	ZOOM SIZE	Ranges: : 0~127
1	WIDE SIZE	Ranges: : 0~127
2	H.BLK.LEFT	Ranges: : 0~7
3	H.BLK.RIGHT	Ranges: : 0~7
4	OSD. CONT	Ranges: : 0~127
5	OSD H.POSI.	Ranges: : 0~63
6	OSD V.POSI.	Ranges: : 0~31
7	SCR.H.POSI.	Ranges: : 0~127
8	SETUP SELECT	0:can not enter adjust menu. / 1:can enter adjust menu.

### 4) ADJUSTMENT ITEM (MENU3)

Item	Name	Descriptions
0	POWER OPTION	Set at 0
1	POWER LOGO	Set at 0
2	POWER ON KEY	Set at 1
3	BLUE BACK	Set at 1
4	BLK PROCESS	Set at 1
5	V.MUTE P.OFF	Set at 1
6	LINE MODE	Set at 0
7	SCREEN TYPE	Set at 0
8	SCREEN OPT.	Set at 0
9	SCREEN TIME	Set at 4

### 5) ADJUSTMENT ITEM (MENU4)

Item	Name	Descriptions
0	SEARCH SPEED	Set at 0
1	TUNER UHF	Set at 1
2	CATV BAND	Set at 0
3	VL/VH FREQ.	Set at 30
4	VH/UHF FREQ.	Set at 60
5	AV IF STATUS	Set at 0
6	PAL M/N/NTSC	Set at 1
7	MENU BACK	Set at 0

8	PROMPT TYPE	Set at 1
9	X-RYA LEVEL	Set at 43

#### 6) ADJUSTMENT ITEM (MENU5)

Item	Name	Descriptions
0	AV OPTION	Set at 2
1	S-VIDEO OPT.	Set at 1
2	YUV OPTION	Set at 0
3	ONLY AV MODE	Set at 0
4	DVD OPTION	Set at 1
5	DVD OFF TIME	Set at 6
6	OFF TRIGGER	Set at 120
7	ON TRIGGER	Set at 120
8	DVD KEY DEF.	Set at 0
9	DVD PORT DEF	Set at 1

#### 7) ADJUSTMENT ITEM (MENU6)

Item	Name	Descriptions
0	CALENDAR	Set at 1
1	ZOOM OPTION	Set at 1
2	CHILD LOCK	Set at 1
3	REMEMBER AV	Set at 1
4	CCD OPTION	Set at 1
5	VCHIP OPTION	Set at 1
6	V-PASSWORD	Set at 1
7	HOTEL MODE	Set at 0
8	HOTEL VOLUME	Set at 10
9	ON POSITION	Set at 137

#### 8) ADJUSTMENT ITEM (MENU7)

Item	Name	Descriptions
0	ENGLISH OSD	Set at 1
1	FRANCE OSD	Set at 1
2	SPANISH OSD	Set at 1
3	PORTUGUESE	Set at 1
4	CHINESE OSD	Set at 0


### 9) ADJUSTMENT ITEM (MENU8)

Item	Name	Descriptions
0	STEREO OPT.	Set at 2
1	LV1116 GAIN	Set at 4
2	SUR. MODE	Set at 0
3	WOOFER GAIN	Set at 4
4	WOOF OPTION	Set at 0
5	SUB. CONT.	Set at 31
6	SUB. COLOR	Set at 15
7	SUB. SHARP	Set at 20
8	SUB. TINT	Set at 32
9	B.B. BRIGHT	Set at 20

### 10) ADJUSTMENT ITEM (MENU9)

Item	Name	Descriptions
0	AFC GAIN	Set at 1
1	V.SEPUP	Set at 1
2	VIDEO.LEVEL	Set at 7
3	FM.LEVEL	Set at 16
4	CD.MODE	Set at 3
5	SOUND TRAP	Set at 4
6	H.TONE DEF.	Set at 1
7	HALF TONE	Set at 3
8	DIGITAL OSD	Set at 1

### 11) ADJUSTMENT ITEM (MENU10)

Item	Name	Descriptions
0	VOL. FILTER	Set at 1
1	VIF.SYS.SW	0:38.0M / 1:38.9M / 2:45.75M / 3:39.5M
2	BRT.ABL.DEF.	Set at 0

3	MID.STP.DEF	Set at 0
4	BRT.ABL.TH	Set at 0
5	RGB TEMP SW.	Set at 0
6	FSC. /C-SYNC	Set at 1
7	VCO ADJ.SW.	Set at 0
8	C.VCO.ADJ.	Set at 2

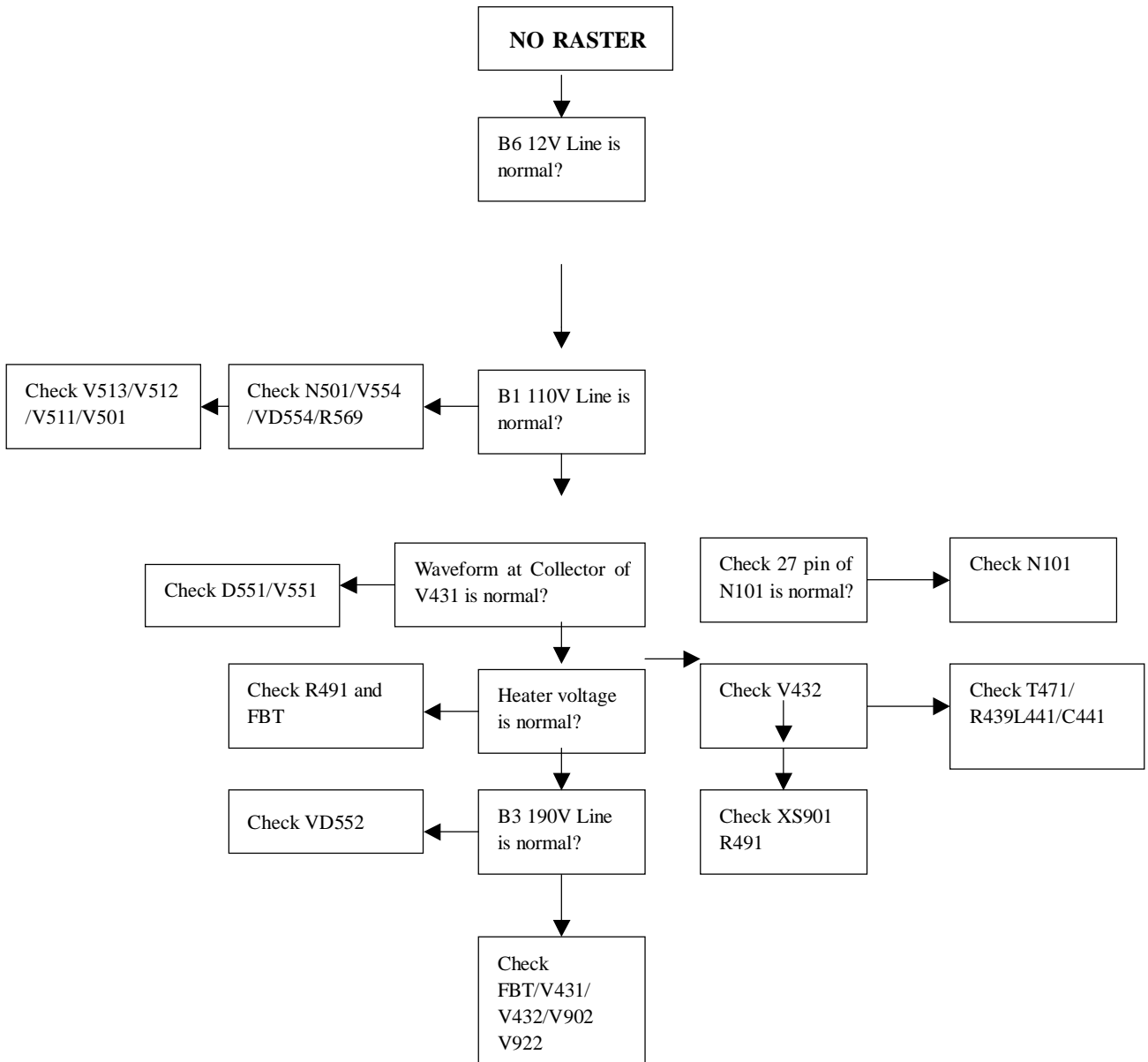
12) ADJUSTMENT ITEM (MENU11)

Item	Name	Descriptions
0	VREST TIMING	Set at 1
1	G-Y ANGLE	Set at 0
2	C.KILLER OPE	Set at 5
3	V.BLK.SW	Set at 0
4	FBPBLK.SW.	Set at 0
5	WPL OPE.	Set at 0
6	PRE/OVER ADJ	Set at 0
7	PRE/OVER SW.	Set at 0
8	CORING W/DEF	Set at 3

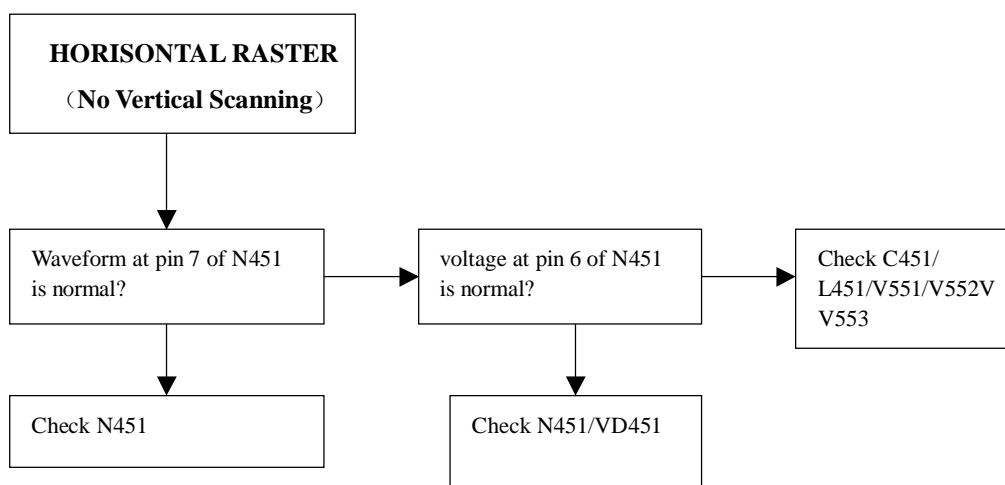
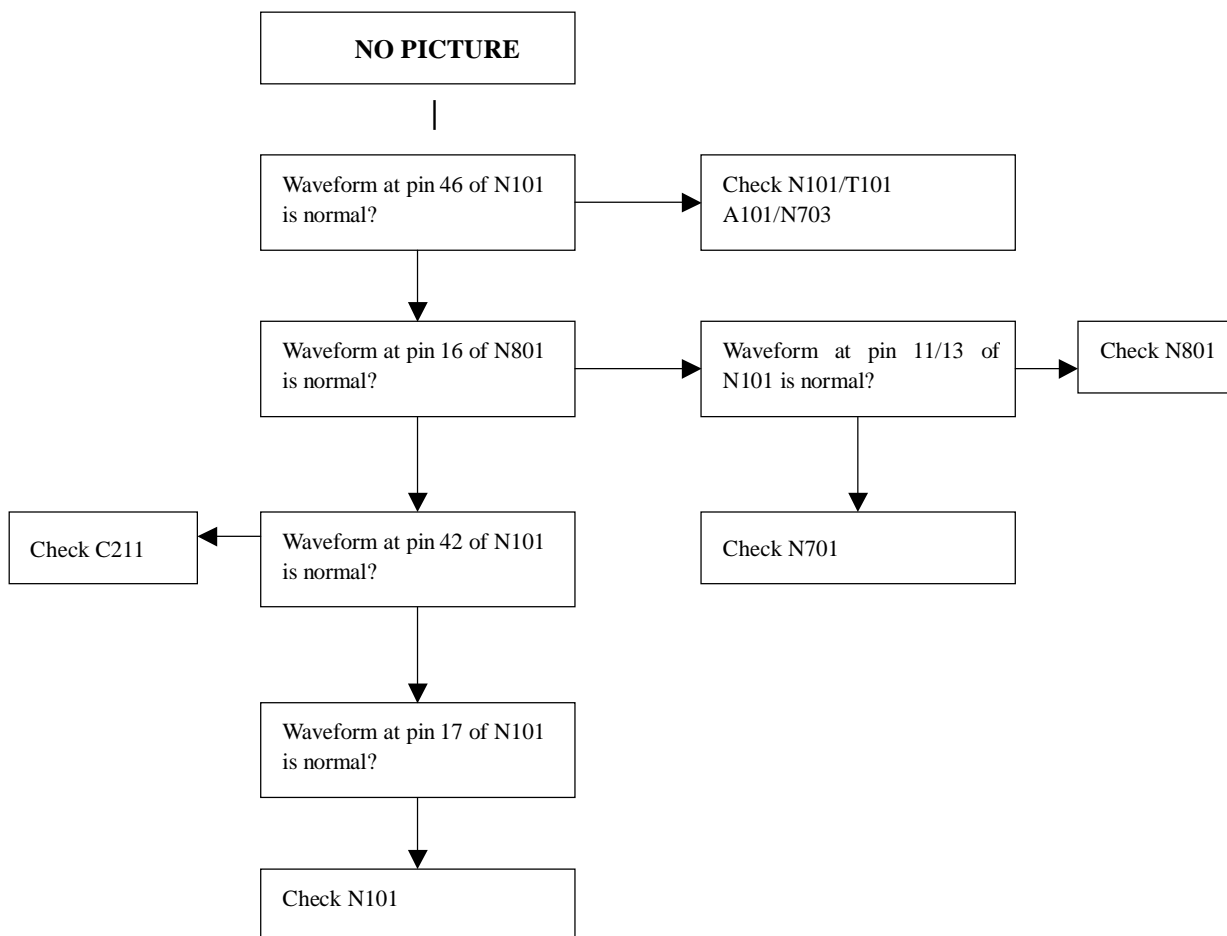
13) ADJUSTMENT ITEM (MENU12)

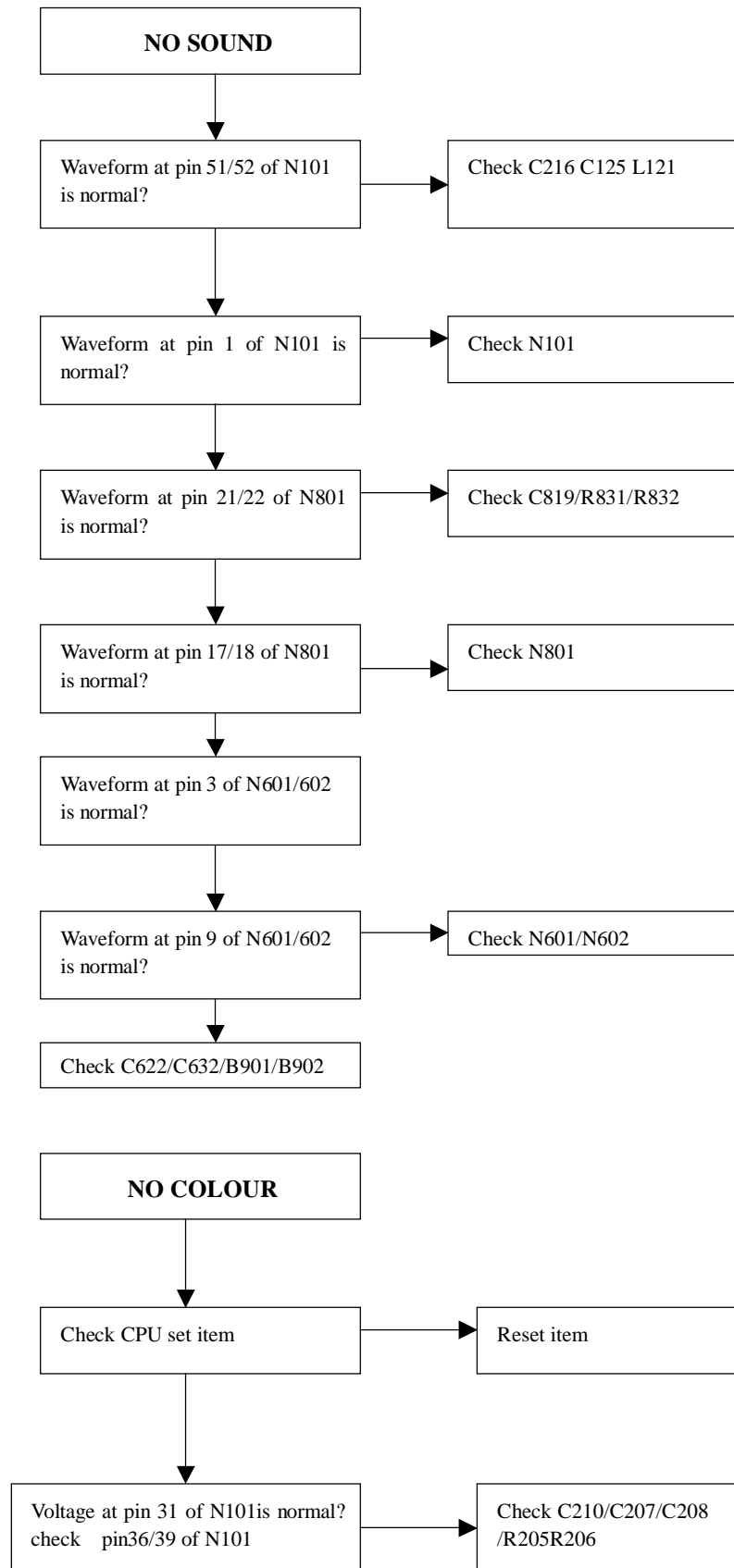
Item	Name	Descriptions
0	Y GAMMA STA.	Set at 3
1	DC.REST	Set at 0
2	BLK.STR.STA.	Set at 2
3	BLK.STR.GAIN	Set at 2
4	A.MONI.SW	Set at 0
5	S.TRAP.SW	Set at 1
6	V.LEV.OFFSET	Set at 2
7	OVER.MOD.SW.	Set at 0
8	OV.MOD.LEVEL	Set at 0

## TROUBLE SHOOTING TABLE

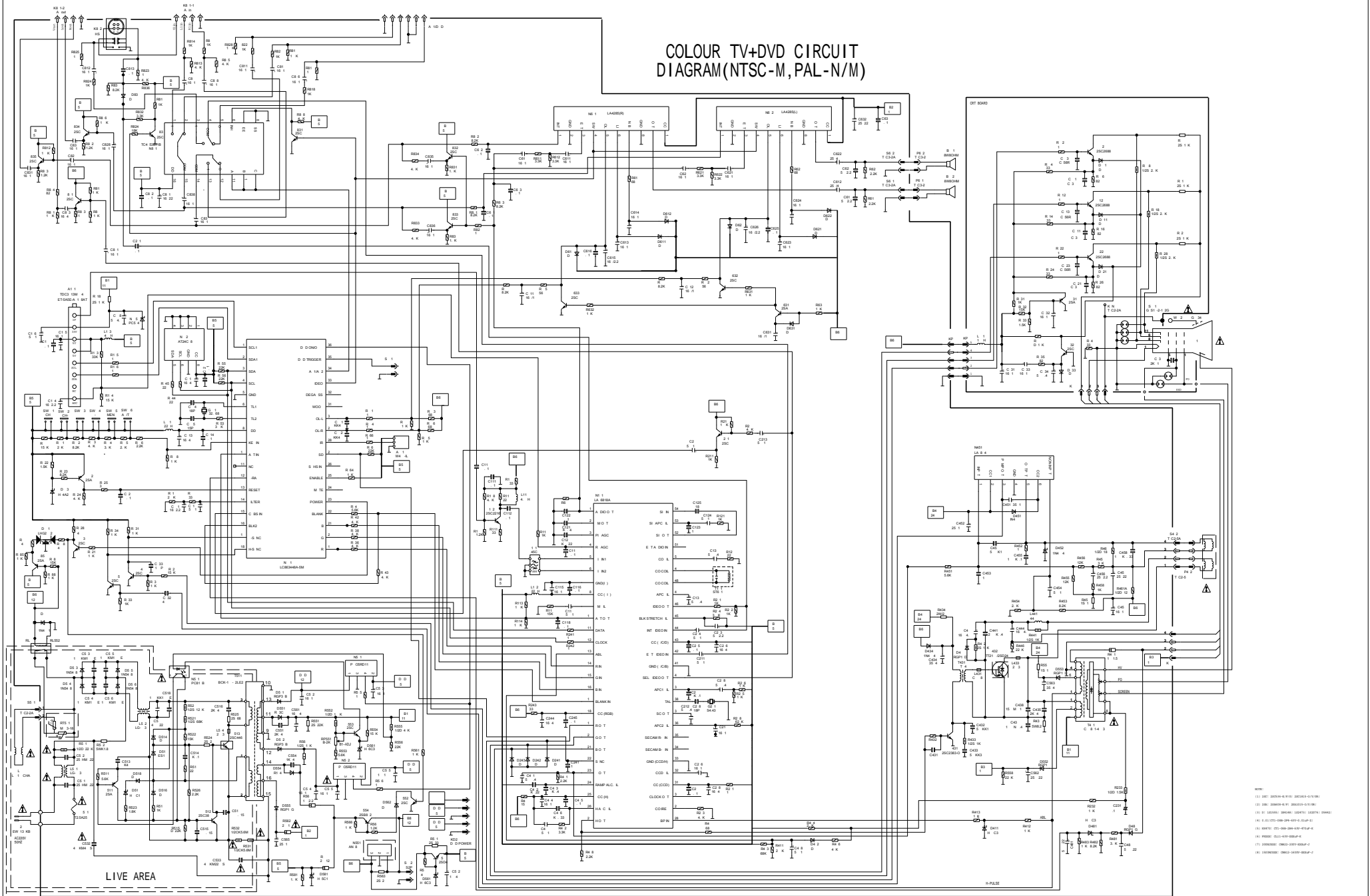








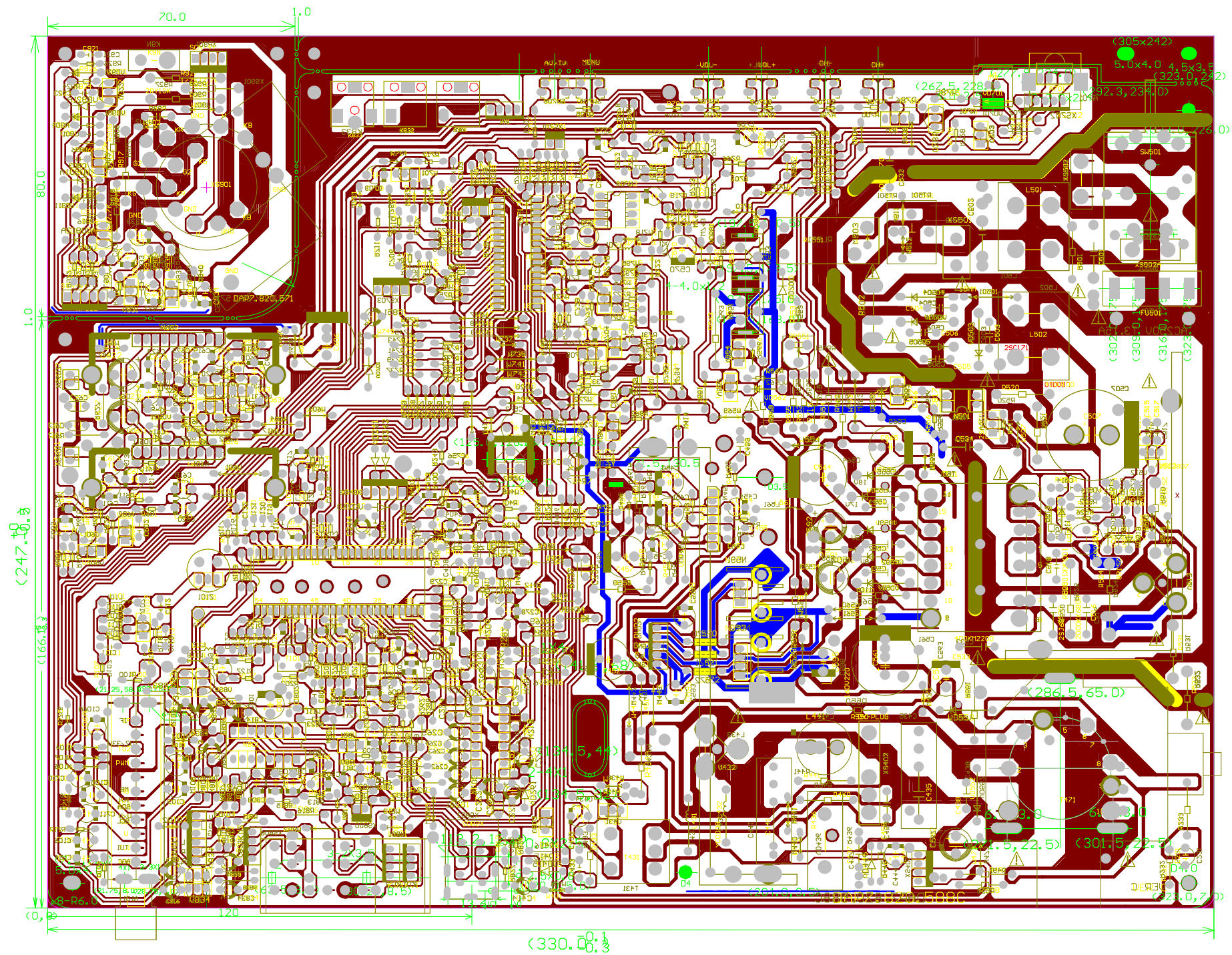
COLOUR TV+DVD CIRCUIT  
DIAGRAM(NTSC-M,PAL-N/M)



```

MATHC:
(1) 20C7: 20C534-6/PT 20C1815-0/PT081
(2) 20C7: 20A008-6/PT 20A3315-0/PT081
(3) DT 101555: 20A048: 10A073: 10A276: 05A621
(4) 0.1.175: 000-200-077-0.10p-11
(5) 00070: 075-000-200-077-070p-0
(6) 00000: 0111-070-000p-0
(7) 2000000: 00012-2007-000p-7
(8) 1000000: 00012-1007-000p-7

```



## TV/DVD清单 (LA76818+TH-DVD)

序号	型 号 规 格	数量	装 入位号
1	碳膜电阻(1/6W)		
2	RT13-1/6W-1 $\Omega \pm 5\%$	1	R452
3	RT13-1/6W-22 $\Omega \pm 5\%$	1	R519
4	RT13-1/6W-27 $\Omega \pm 5\%$	1	R111
5	RT13-1/6W-82 $\Omega \pm 5\%$	7	R807 R808 R817 R818 R827 R935
6			RW802
7	RT13-1/6W-100 $\Omega \pm 5\%$	15	R107R241R242R766R770R774C803R803
8			R834R902R912R922R596R264R831
9	RT13-1/6W-120 $\Omega \pm 5\%$	1	R271
10	RT13-1/6W-220 $\Omega \pm 5\%$	4	R110 R243 R744 R745
11	RT13-1/6W-330 $\Omega \pm 5\%$	5	R122 R725 R904 R914 R924
12	RT13-1/6W-470 $\Omega \pm 5\%$	5	R127 R727 R728 R798 R799a
13	RT13-1/6W-560 $\Omega \pm 5\%$	2	R778 R780
14	RT13-1/6W-680 $\Omega \pm 5\%$	5	R409 R610 R620 R707 R707A
15	RT13-1/6W-820 $\Omega \pm 5\%$	3	R906 R916 R926
16	RT13-1/6W-1K $\Omega \pm 5\%$	14	R109R119R121R201R458R202R810
17			R210R262R862R819R931R517R812
18	RT13-1/6W-1.2K $\Omega \pm 5\%$	4	R567 R404 R838 R839
19	RT13-1/6W-1.5K $\Omega \pm 5\%$	4	R859 R706 R722 R933
20	RT13-1/6W-1.8K $\Omega \pm 5\%$	1	R523
21	RT13-1/6W-2.2K $\Omega \pm 5\%$	4	R401 R408 R279 R526
22	RT13-1/6W-2.7K $\Omega \pm 5\%$	2	R454 R705
23	RT13-1/6W-3.3K $\Omega \pm 5\%$	9	R402 R621 R611 R742 R743
24			R120 R820 R612 R622
25	RT13-1/6W-3.9K $\Omega \pm 5\%$	2	R704 R416
26	RT13-1/6W-4.7K $\Omega \pm 5\%$	16	R703 R724 R760 R834 R836
27			R736 R738 R740 R813 R815 R861
28			R825 R737 R739 R741 R733
29	RT13-1/6W-5.6K $\Omega \pm 5\%$	4	R108 R451 R511 R553
31	RT13-1/6W-8.2K $\Omega \pm 5\%$	6	R702 R777 R723 R779 R826 R415
32	RT13-1/6W-10K $\Omega \pm 5\%$	31	R412R413R561R630R631R632R749
33			R771R772R775R708R720 R1 R2 R3
34			R721 R730 R731 R734 R754 R566
35			R453 R900 R849 R205 R206 R417
			R809 R811 R785R788
36	RT13-1/6W-12K $\Omega \pm 5\%$	3	R456 R773 R776
37	RT13-1/6W-15K $\Omega \pm 5\%$	3	R455 R787 R932
38	RT13-1/6W-18K $\Omega \pm 5\%$	1	R103
39	RT13-1/6W-22K $\Omega \pm 5\%$	10	R556 R746 R747 R748
40			R515 R759 R755 R756 R753 R765
41	RT13-1/6W-27K $\Omega \pm 5\%$	2	R701 R824
43	RT13-1/6W-39K $\Omega \pm 5\%$	1	R457
45	RT13-1/6W-68K $\Omega \pm 5\%$	2	R104 R802
46	RT13-1/6W-82K $\Omega \pm 5\%$	1	R732
47	RT13-1/6W-100K $\Omega \pm 5\%$	3	R113 R114 R804
48	RT13-1/6W-150K $\Omega \pm 5\%$	3	R554 R700 R729
49	RT13-1/6W-270K $\Omega \pm 5\%$	1	R726
50	RT13-1/6W-330K $\Omega \pm 5\%$	1	R403
51	RT13-1/6W-390K $\Omega \pm 5\%$	1	R709
53	RT13-1/6W-680K $\Omega \pm 5\%$	1	R204
55	碳膜电阻(1/4W)		
56	RT14-1/4W-2.2K $\Omega \pm 5\%$	2	R617 R627
57	RT14-1/4W-33 $\Omega \pm 5\%$	1	R940
58	RT14-1/4W-270 $\Omega \pm 5\%$	1	R400
59	RT14-1/4W-10K $\Omega \pm 5\%$	1	R232
	RT14-1/4W-15K $\Omega \pm 5\%$	1	R522

## TV/DVD清单 (LA76818+TH-DVD)

序号		型 号 规 格	数量	装 入位号
60		RT14-1/4W-220K $\Omega \pm 5\%$	1	R446
62		金属膜电阻(1/4W)		
63		RJ14-1/4W-4.7K $\Omega \pm 1\%$	1	R273
65		碳膜电阻(1/2W)		
66		RT15-1/2W-330 $\Omega \pm 5\%$	1	R460
67		RT15-1/2W-120 $\Omega \pm 5\%$	1	R461A
70		RT15-1/2W-1.5K $\Omega \pm 5\%$	1	R233
71		RT15-1/2W-47K $\Omega \pm 5\%$	1	R555
		RT15-1/2W-68K $\Omega \pm 5\%$	1	R521B
72		RT15-1/2W-100K $\Omega \pm 5\%$	1	R552
		RT15-1/2W-120K $\Omega \pm 5\%$	1	R520B
73		RT15-1/2W-220K $\Omega \pm 5\%$	2	R501 R558
74		RT15-1/2W-1M $\Omega \pm 5\%$	1	R951
76		熔断电阻		
77	UL	RF10-1/2W-1 $\Omega \pm 5\%$	1	R550
78	UL	RF10-1W-1.5 $\Omega \pm 5\%$	1	R491
79	UL	RF10-1W-3.9 $\Omega \pm 5\%$	1	R569
80	UL	RF10-2W-1 $\Omega \pm 5\%$	1	R562
81		金属氧化膜电阻		
82		RY15-1/2W-1K $\Omega \pm 5\%$	1	R433
83		RY15-1/2W-2.7K $\Omega \pm 5\%$	3	R908 R918 R928
85		RY16-1W-1.5 $\Omega \pm 5\%$	1	R459
		RY16-1W-1K $\Omega \pm 5\%$	1	R441
86		RY16-1W-1.5K $\Omega \pm 5\%$	1	R560
87		RY17-2W-150 $\Omega \pm 5\%$	1	R799
88		RY17-2W-68 $\Omega \pm 5\%$	1	R525
89		RY17-2W-27 $\Omega \pm 5\%$	1	R563
90		RY17-2W-270 $\Omega \pm 5\%$	1	R434
91		RY17-2W-10K $\Omega \pm 5\%$	4	R718 R907 R917 R927
93		RY17-2W-22K $\Omega \pm 5\%$	1	R551
95		合成膜隔离电阻		
96	UL	1/2W-5.6M $\Omega$ -K	2	R531 R532
98		水泥电阻		
99		RX27-5W-1.5 $\Omega$ -K( )	1	R502
		RX27-5W-8.2 $\Omega$ -K( )	1	R436
100		RX27-5W-27 $\Omega$ -K( )	1	R524
101		消磁热敏电阻		
102	UL	MZ73-18RM270V	1	RT501
106		微调电位器		
107		WI06-2AA2K $\Omega$	1	RP551
109		低压陶瓷电容		
110		CC1-08A-CH-63V-15pF-J	1	C704
111		CC1-08A-CH-63V-18pF-J	2	C125 C705
112		CC1-08A-CH-63V-20pF-J	1	C209
113		CC1-06A-RH-63V-39pF-J	1	C126
114		CC1-06A-RH-63V-56pF-J	3	C903 C913 C923
115		CC1-10A-RH-63V-390pF-J	3	C901 C911 C921
116		CC1-10A-RH-63V-100pF-J	3	C1 C2 C3
118		CT1-04-B-63V-470PF- $\pm 10\%$	2	C771 C772
119		CT1-06A-2B4-63V-1000pF-K	2	C123 C453
120		CT1-08A-2F4-63V-0.01uF-Z	25	C112 C116 C118 C205 C245 C279
121				C119 C122 C274 C275 C277 C110
122				C405 C625 C607 C702 C703 C616
123				C720 C729 C802 C804 C812 C111C1081
124		中压陶瓷电容		
126		CT1-08C-2B4-500V-1000pF-K	1	C432
127		CT1-08C-2B4-500V-3900pF-K	1	C433

## TV/DVD清单 (LA76818+TH-DVD)

序号		型 号 规 格	数量	装 入位号
129		高压陶瓷电容		
130		CT81-08C-2R-1KV-470pF-K	1	C554
131		CT81-06C-2R-1KV-1000pF-K	4	C503 C504 C505 C506
132		CT81-10C-2R-2KV-680pF-K	1	C438 (配DC11偏转为1000P)
133		CT81-10C-2R-2KV-470pF-K	3	C551 C552 C516
134		CT81-12C-2R-2KV-1000pF-K	1	C939
135	UL	CT81-AC400V-470PF-K	1	C532
136	UL	CT81-AC400V-2200PF-M	1	C533
138		电解电容		
139		CD110-10V-470uF -M	2	C570 C572
140		CD110-16V-2.2uF -M	4	C104 C714 C615 C626
141		CD110-16V-10uF -M	26	C276 C931 C932 C610 C611 C620
142				C621 C773 C774 C803 C806 C807
143				C808 C809 C810 C811 C813 C814
144				C822 C1080
145				C815 C816 C831 C832 C833 C834
146		CD110-16V-47uF -M	5	C244 C278 C701 C719 C206
147		CD110-16V-100uF -M	8	C115 C623 C613 C614 C101
148				C624 C631 C404
149		CD110-16V-220uF -M	4	C801 C592 C576 C598
150		CD110-16V-470uF -M	1	C805
151		CD110-16V-1000uF -M	3	C594 C595 C593
152		CD110-25V-100uF -M	1	C565
153		CD110-50V-2.2uF -M	1	C456
154		CD110-25V-470uF -M	2	C622 C612
155		CD110-25V-1000uF -M	1	C564
156		CD110-25V-2200uF -M	2	C457 C606
157		CD110-35V-47uF -M	2	C434 C414
158		CD110-35V-100uF -M	1	C451
159		CD110-35V-470uF -M	1	C563
160		CD110-35V-1000uF -M	1	C452
161		CD110-50V-0.22uF -M	1	C402
162		CD110-50V-0.47uF -M	6	C137 208 401 403 210 934
164		CD110-50V-1uF -M	10	C117 C211 C139 C204 C713
165				C407 C454 C213 C861 C415
166		CD110-50V-4.7uF -M	2	C203 C708
		CD110-50V-100uF -M (Φ8X12)	1	C450
167		CD110-160V-1uF -M	1	C444
168		CD110-160V-470uF -M	1	C561
		CD110-250V-4.7uF-M	1	C951
169		CD110-250V-22uF-M	1	C562
170		CD293-400V-220uF-±10%	1	C507
171		无极性电解电容		
172		CD71-BP-50V-2.2uF-M	2	C617 C627
173		CD71-BP-50V-1uF-M	1	C231
175		聚酯膜电容		
177		CL11-63V-0.015uF-K	2	C515 C517
178		CL11-63V-0.022uF-K	1	C120
179		CL11-63V-0.033uF-K	2	C124 C406
		CL11-63V-0.047uF-K	1	C121
180		CLX-100V-0.1uF-±5%	4	C459 C207 C408 C514
181		CL12-100V-0.033uF-K	1	C458
182		CL21X-100V-0.47uF-±5%	1	C437
184		金属聚酯膜电容		
185	UL	275V AC-0.22uF--K	2	C501 C502
187		高压聚丙烯电容		
188		CBB81-1.6KV-9100PF-±5%	1	C435

## TV/DVD清单 (LA76818+TH-DVD)

序号		型 号 规 格	数量	装 入位号
190		聚丙烯电容		
191		CBB214-250V-0.47uF±5%	1	C441
193		功率二极管		
194		EM01Z	1	VD451
195		ES1	3	VD517 VD553 VD555
196		EU01/RU2	1	VD552
197		RU3C	1	VD551
198		EU2Z	2	VD554 VD415
199		IN5408	4	VD503 VD504 VD506 VD505
200		PGP30B	1	VD592
201		玻封二极管 1N4148	18	VD001 VD401 VD611 VD612 VD562
202				VD621 VD610 VD241 242 243
203				VD622 VD514 VD516 VD518
204				VD620 VD631 VD402 VD801
206		1N4001	1	VD700
		1N4004	1	VD434
		1N4007	1	VD951
207		稳压二极管		
208		HZ4A2	1	VD703
		HZ5C1	2	VD416 VD581
209		HZ6C3	1	VD561
210		HZ7C1	1	VD519
211		HZ7C3	1	VD411
213		三极管		
214		2SA1015-Y	5	V511 V631 V702 V785 V931
215		2SC1815-Y	14	V552 V633 V553 V632 V703 V704
216				V705 V801 V803 V831 V832 V833
217				V834 V861
218		2SB892S	1	V554
219		2SC2216	1	V102
220		2SC3807-R	1	V512
221		2SC2482	3	V902 V912 V922
222		2SC2383-O	1	V431
223		C4460	1	V513
224		TT2190	1	V432
225		集成电路		
226		LA4285	2	N601 N602
227		KA7812	1	N551
228		KA7805	2	N552 N591
229		L5630/KA33V	1	N705
230		LA76818	1	N101
231		LA7840	1	N451
233		PQ05RD21四端稳压器	1	N596
234		LC863432B-54C9/55M0	1	N701
235		AT24C08	1	N702
236	UL	H11A 817B/C	1	N501
237		TC4053BP/BF	1	N801
238		发光二极管LED705	1	VD701
239		红外遥控接收器 HS0038A	1	A701
241		固定电感		
242		LGA0307-22uH-K	1	L102
243		LGA0307-15uH-K	1	L121
244		LGA0307-39uH-K	1	L701
245		LGA0410-18uH-K	1	L451
247		行线性线圈Z0449	1	L441
248		穿芯磁管 YC0008(3.5X5mm)	2	L571 L572
249		穿芯磁管 YC0012(5X6mm)	3	L431 L432 L561

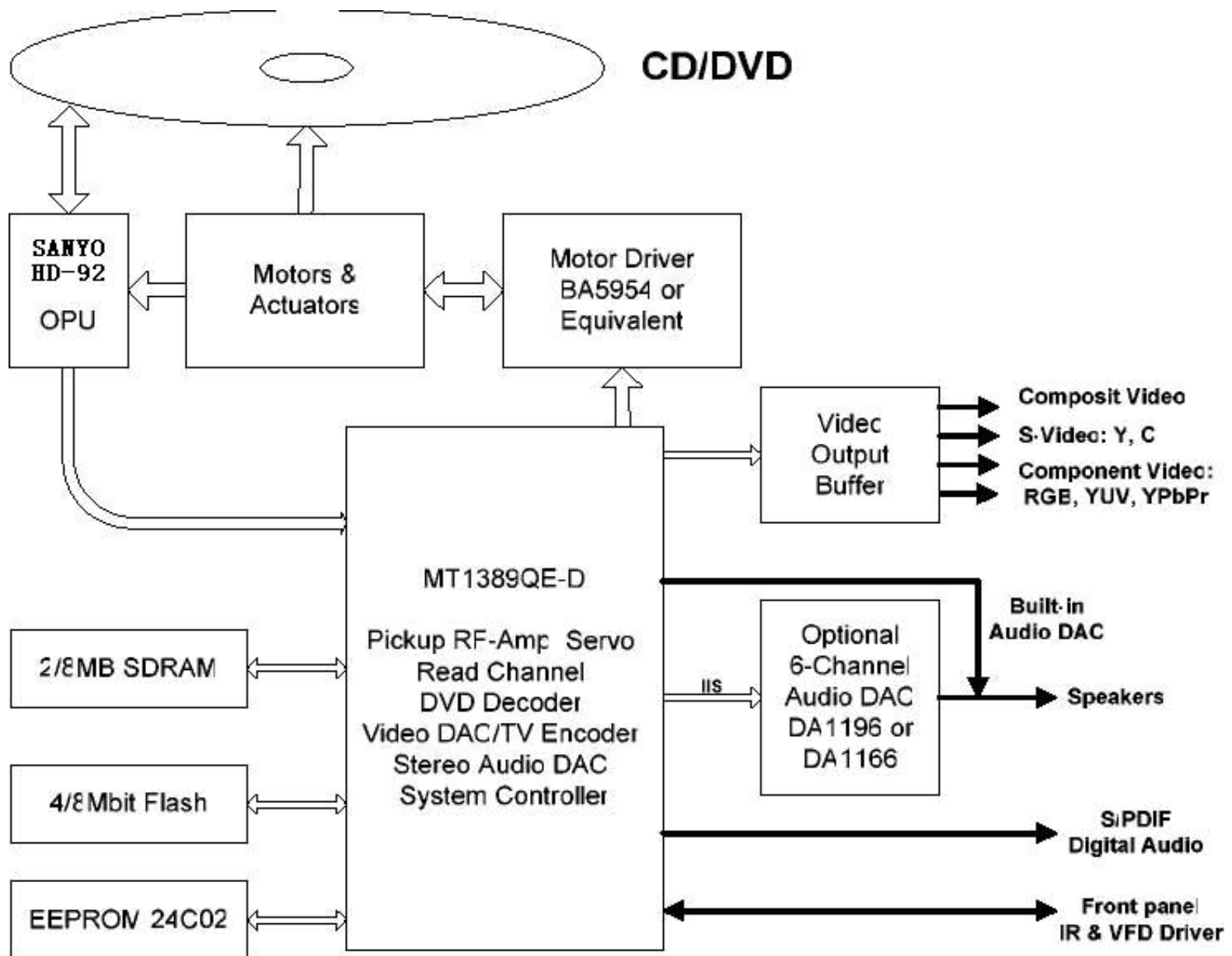


## TV/DVD清单 (LA76818+TH-DVD)

序号		型 号 规 格	数量	装 入位号
250		磁管 Z2073	2	V513 V432
252		跳线 TXP-5mm	11	W102,121,204,562,618,
253				W723,L511
254				W503(手插) W003,C601,C602
255		跳线 TXP-7.5mm	66	W103,104,106,107,108,118,201,202,203,
256				W207,210,402,413,471,R270,208,403,801,
257				W409,410,411,412,414,417,426,429,430,
258				W438,440,451,510,555,607,609,610,
259				W611,612,703,704,711,716,717,
260				W718,719,720,721,737,740,744,743,746,
261				W755,756,762,792,795,804,807,809,815,
262				W512,852,WR280
263				W552,734,
264				W902
270		跳线 TXP-10mm	56	W109,111,113,116,120,205,
271				W216,217,265,271,406,407,408,
272				W415,416,420,441,473,507,615,
273				W515,551,569,603,605,608,702,705,706,
274				W707,708,709,710,712,713,714,722,724,
275				W725,726,727,728,729,731,738,715
276				W739,752,753,761,803,805,861
277				W405
278				W901,L901
284		跳线 TXP-12.5mm	10	W404,421,502,554,578,579,
285				W602,604,771,772,701
287		跳线 TXP-15mm	17	W418,443,422,R434A,442,501,553,561560
288				W617,735,741,742,745,750,793,794
291		跳线 TXP-20mm	3	W747 W748 W749
293	UL	消磁线圈 CDLX--37	1	L909
294	UL	继电器 HKE HRMH-S-DC12V-A	1	RL551
		声表面F45C	1	Z101
295		中频线圈 ST6017	1	T101
296	UL	行输出CF0801-4703/XF0801-01CK01	1	T471
297	UL	开关变压器 BCK-100-02L(绝缘等级E) E	1	T511
298	UL	电源滤波器 LG-003-NL	2	L501 L502
299		行推动变压器 TX40	1	T431
301		S-VIDEO输入插座 SW-3K	1	XS805
302		6孔AV组件 AV3-6(上红, 中白, 下黄)	1	XS801
303		轻触开关 KFC-A06-H5.0	10	SW701 SW702 SW703 SW707 POWER
304				SW704 SW705 SW706 SW708 SW709
305	UL	像管座GZS12-4-AC	1	
306	UL	保险管 50T T3.15A 250V AC	1	FU501
307		调谐器FTDC3Y13MV04	1	A101
308		石英振荡器 JA18B-4.4336169MHz	1	G201
309		陶瓷振荡器 32.768KHz	1	G701
310	UL	电源线 NISPT-2 18AWGX2C VW-1 DTI-2P-02	1	U902VDE/UL 美式二极扁插(带VH-3Y)
	UL	插头插座(电源线)	1	VH-3Y(插头) VH-3A(插座)
311		喇叭YDT5090-20-5W-8Ω	2	B901 B902
312	UL	印制板(主板) DAP7.820.588B	1	
313	UL	印制板(遥控板) DAP7.820.580A	1	
314	UL	印制板(按键板) DAP7.820.579	1	
315	UL	印制板(视放板) DAP7.820.570A(彩虹管)	1	
316	UL	印制板(AV板) DAP7.820.478	1	
317		遥控发射器 CDL-78	1	
320	UL	显像管	1	
321		DVD机芯(含解码板) DV34-78LA	1	

# **DCL34MK89D Complete Loader**

## **Service Manual**



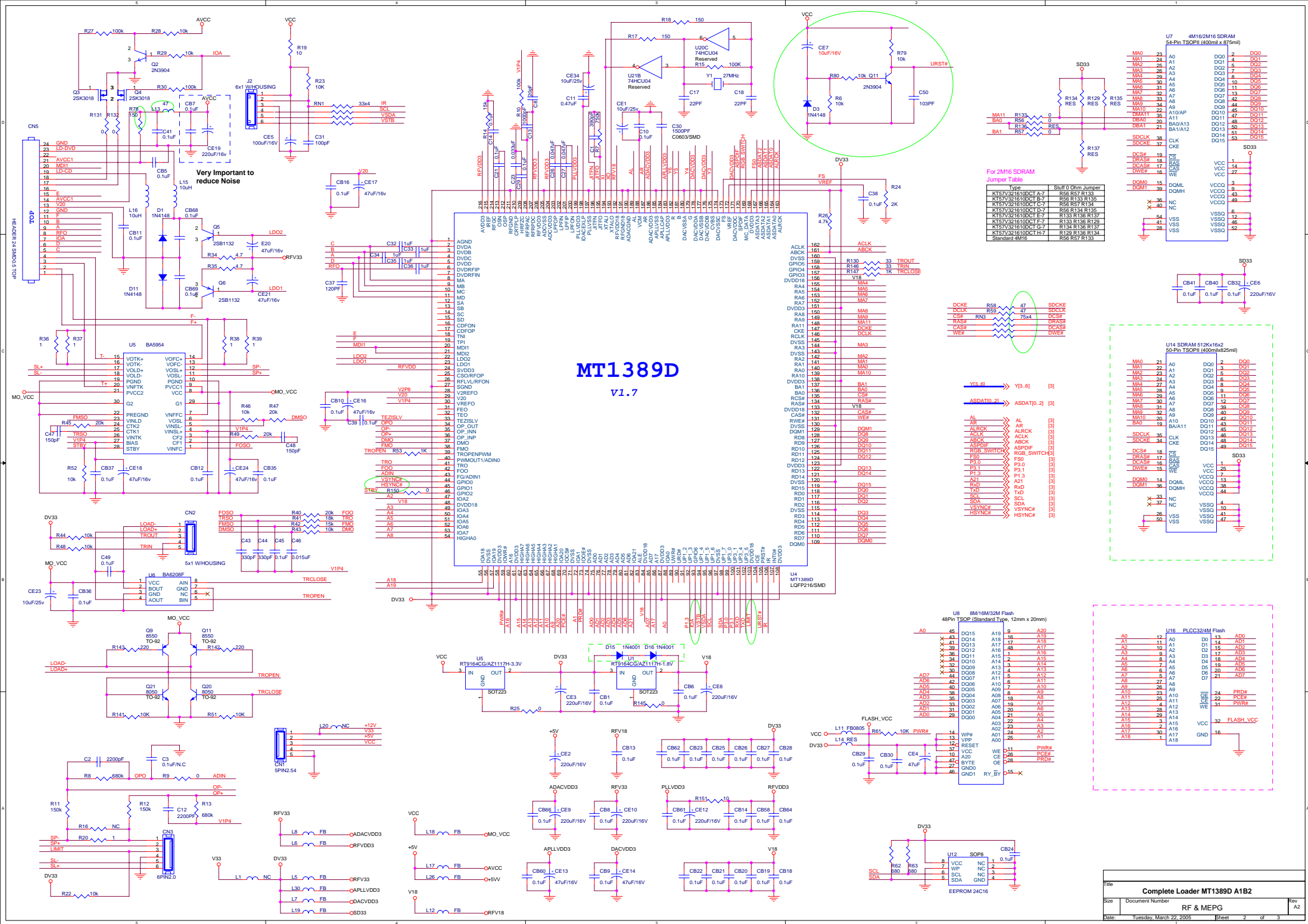
# MT1389D (LQFP216) DVD Complete Loader for Sanyo slim HD60 PUH

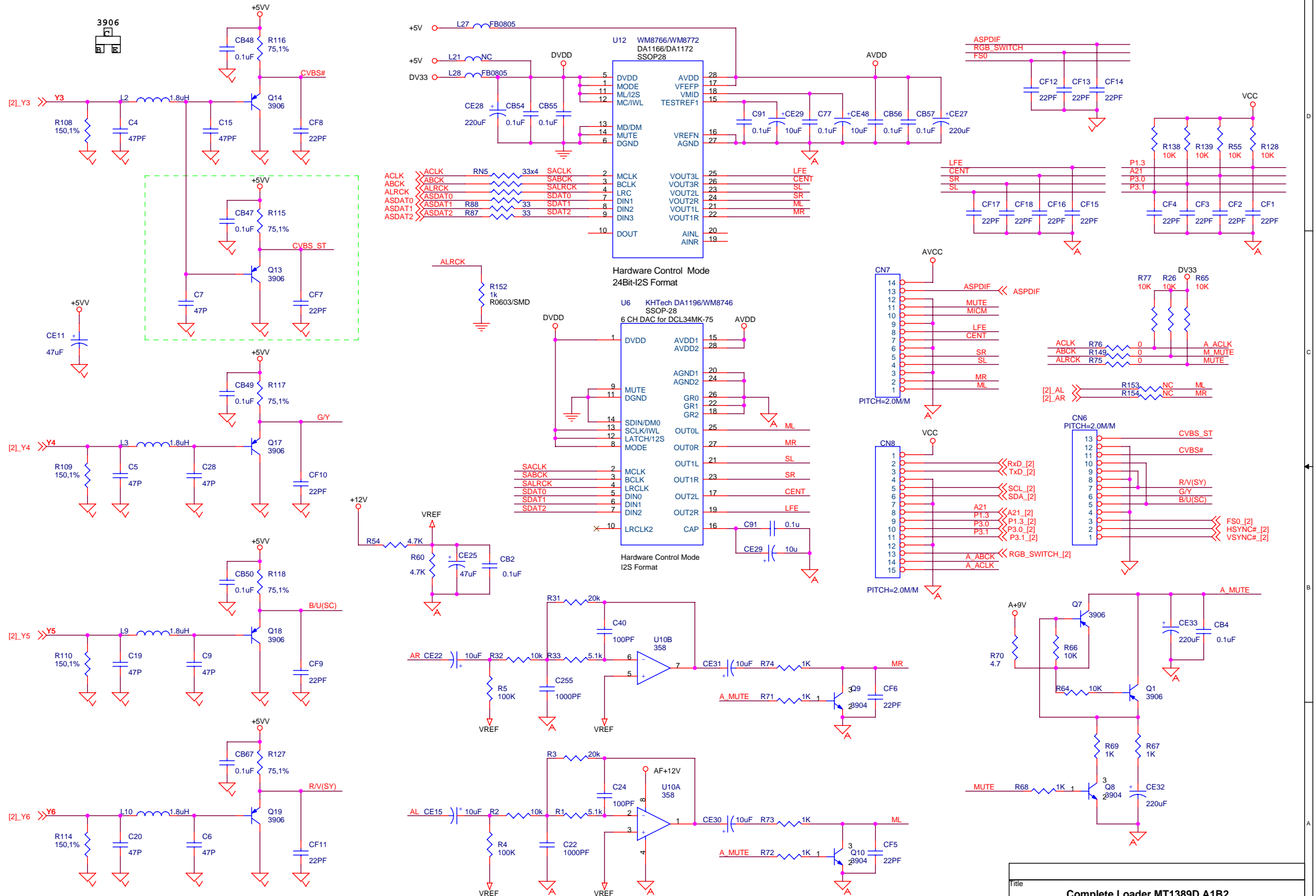
- 1 INDEX
- 2 MPEG & MEMORY, FLASH - MT1389D
- 3 AUDIO DAC DA1196 & VIDEO OUT  
& STEREO OUTPUT NO DAC & 4558 & MUTE

## System Configuration

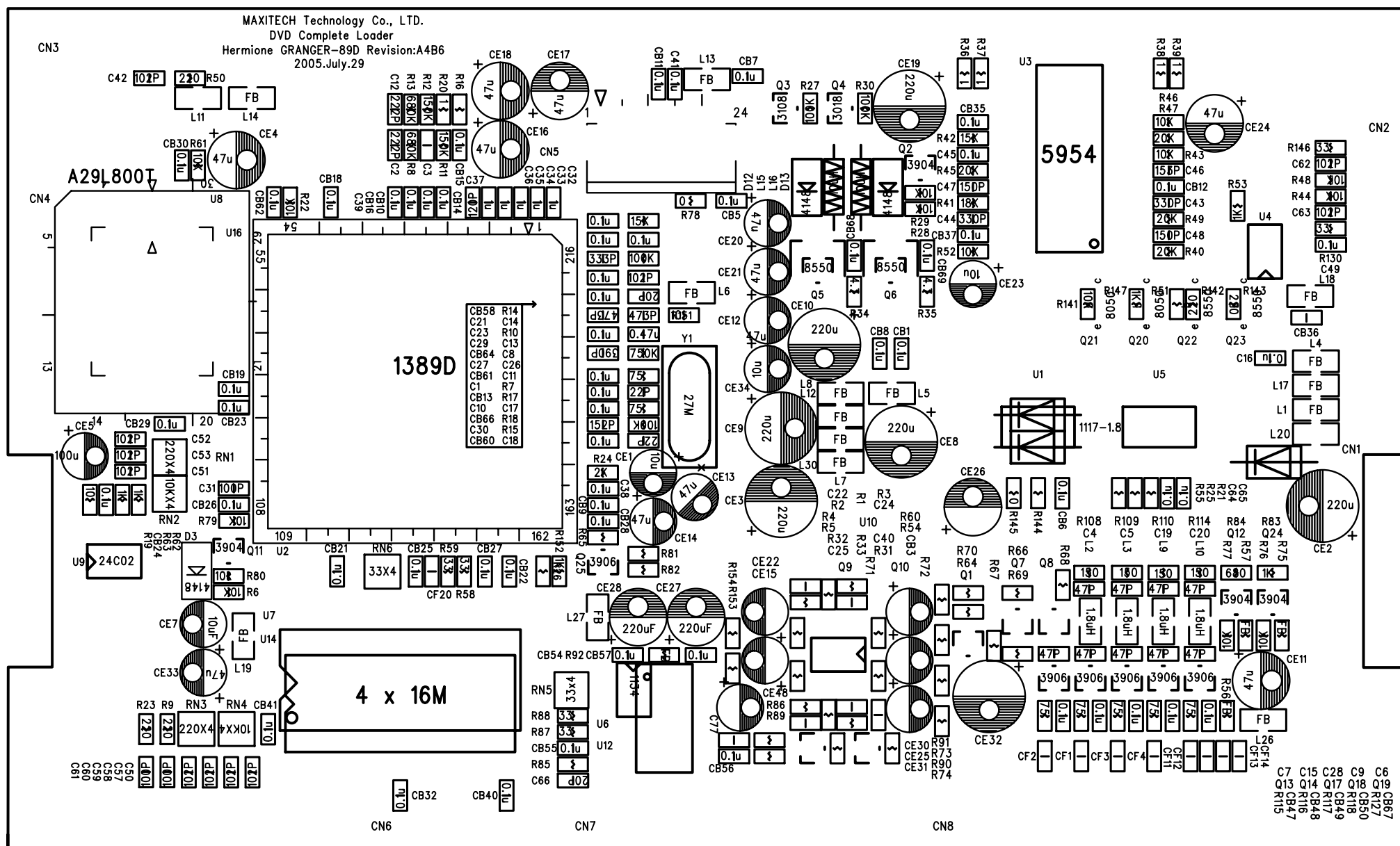
EAUXx	FUNCTION
MT1389D Pin 82 A21	General Purpose I/O
MT1389D Pin 92 P1.3	General Purpose I/O.
MT1389D Pin 99 P3.0	General Purpose I/O.
MT1389D Pin 100 P3.1	General Purpose I/O.
MT1389D Pin 167	SCART Control Signal FS0.
MT1389D Pin 169	SCART Control Signal RGB/Video Switch.
MT1389D Pin 170	ASPDIF Output Signal
MT1389D Pin 161 ABCK	General Purpose I/O If No 5.1 Channel
MT1389D Pin 162 ACLK	General Purpose I/O If No 5.1 Channel
MT1389D Pin 163 ALRCK	Audio Output MUTE Control signal If No 5.1 Channel

Title		
Complete Loader MT1389D A1B2		
Size	Document Number	Rev
	INDEX	A4
Date:	Tuesday, March 22, 2005	Sheet 1 of 3





CN3



2.3V\+1.5V  
+2V  
VCC  
GND  
GND  
LOAD-  
LOAD+  
TROUT  
GND  
TRIN

F-

10pin 4 x 1

F+

10pin 4 x 1

T-

T+

VR-DVD  
VR-CD

E

D

MDI

F

IOV

C

B

RFO

A

A2XMC#  
H2XMC#  
RGB\_2M

GND

B

C

R

GND

2A

2C

CA1

GND

CA5

CF2  
CF2

MT  
MR

CF6

GND

CF1

2T

CF8

2R

CF4

GND

CF10

CEN

GND

LEE

b3'0

b3'1

GND

2bDLE

+2V

CS4  
CS2  
CS2  
CS2  
V2D  
GND  
+2V

IR

2TB

2CK

V2D

GND

+2V

2T+  
2T-  
TWML  
GND  
2b+  
2b-

GND  
b2'1  
b2'0  
b1'2  
V2L  
GND  
2DV  
2CT  
GND  
1x0  
RxD  
+2V



## Bill of material of DCL34MK89D Complete Loader

Item	Value	Part No	Package	Quantity		Vender	Note
<b>Chip Resistors</b>							
1	0 Ohm 1/16W ±5%	SR2-000016-J	SMD 0603	9	R9 R25 R56 R57 R131 R132 R133 R145 R150		
2	1 Ohm 1/16W ±5%	SR2-1R0016-J	SMD 0603	5	R20 R36 R37 R38 R39		
3	4.7Ohm 1/16W ±5%	SR2-4R7016-J	SMD 0603	3	R34 R35 R70		
4	10 Ohm 1/16W ±5%	SR2-100016-J	SMD 0603	2	R19 R151		
5	33 Ohm 1/16W ±5%	SR2-330016-J	SMD 0603	5	R53 R75 R130 R146 R147		
6	33 Ohm X 4 ±5% Resistor Array	SR6-330016-J	MNR04	2	RN1 PN3		
7	75 Ohm 1/16W ±5%	SR2-750016-J	SMD 0603	7	R58 R59 R115 R116 R117 R118 R127		
8	100 Ohm 1/16W ±5%	SR2-101016-J	SMD 0603	4	R17 R18 R73 R74		
9	150 Ohm 1/16W ±5%	SR2-151016-J	SMD 0603	4	R108 R109 R110 R114		
10	220 Ohm 1/16W ±5%	SR2-221061-J	SMD 0603	3	R80 R142 R143		
11	680 Ohm 1/16W ±5%	SR2-681016-J	SMD 0603	3	R62 R63 R78		
12	1K Ohm 1/16W ±5%	SR2-102016-J	SMD 0603	5	R67 R68 R69 R71 R72		
13	2K Ohm 1/16W ±5%	SR2-202016-J	SMD 0603	1	R24		
14	5.1K Ohm 1/16W ±5%	SR2-512016-J	SMD 0603	2	R1 R33		
15	9.1K Ohm 1/16W ±5%	SR2-912016-J	SMD 0603	1	R60		
16	10K Ohm 1/16W ±5%	SR2-103016-J	SMD 0603	23	R2 R6 R22 R23 R28 R29 R32 R43 R44 R46 R48 R51 R52 R55 R61 R64 R65 R66 R79 R128 R138 R139 R141		
17	12K Ohm 1/16W ±5%	SR2-123016-J	SMD 0603	1	R54		
18	15K Ohm 1/16W ±5%	SR2-153016-J	SMD 0603	2	R14 R42		
19	18K Ohm 1/16W ±5%	SR2-183016-J	SMD 0603	1	R41		
20	20K Ohm 1/16W ±5%	SR2-203016-J	SMD 0603	4	R40 R45 R47 R49		
21	22K Ohm 1/16W ±5%	SR2-223016-J	SMD 0603	2	R3 R31		
22	100K Ohm 1/16W ±5%	SR2-104016-J	SMD 0603	6	R4 R5 R10 R15 R27 R30		
23	150K Ohm 1/16W ±5%	SR2-154016-J	SMD 0603	2	R11 R12		
24	680K Ohm 1/16W ±5%	SR2-684016-J	SMD 0603	2	R8 R13		
25	750K Ohm 1/16W ±5%	SR2-754016-J	SMD 0603	1	R7		

## Bill of material of DCL34MK89D Complete Loader

Item	Value	Part No	Package	Quantity		Vender	Note
<b>Chip Ceramic Capacitors</b>							
26	10pF 50V ±10%	SC2-100500-K	SMD 0603	2	CF19 CF20		
27	20pF 50V ±10%	SC2-200500-K	SMD 0603	1	C8		
28	22pF 50V ±10%	SC2-220500-K	SMD 0603	12	CF1 CF2 CF3 CF4 CF5 CF6 CF7 CF8 CF13 CF9 CF10 CF11		
29	27pF 50V ±10%	SC2-270500-K	SMD 0603	2	C17 C18		
30	47pF 50V ±10%	SC2-470500-K	SMD 0603	9	C4 C7 C15 C5 C6 C9 C19 C20 C28		
31	100pF 50V ±10%	SC2-101500-K	SMD 0603	3	C24 C31 C40		
32	120pF 50V ±10% NPO	SC2-121500-K	SMD 0603	1	C37		
33	150pF 50V ±10%	SC2-151500-K	SMD 0603	2	C47 C48		
34	330pF 50V ±10%	SC2-331500-K	SMD 0603	2	C43 C44		
35	390pF 50V ±10%	SC2-391500-K	SMD 0603	1	C1		
36	1000pF 50V ±10%	SC2-102500-K	SMD 0603	3	C13 C22 C25		
37	1500pF 50V ±10%	SC2-152500-K	SMD 0603	1	C30		
38	2200pF 50V ±10%	SC2-222500-K	SMD 0603	2	C2 C12		
39	10nF 50V ±20%	SC2-103500-M	SMD 0603	1	C50		
40	15nF 50V ±20%	SC2-153500-M	SMD 0603	1	C46		
41	33nF 50V ±20%	SC2-333500-M	SMD 0603	1	C23		
42	47nF 50V ±20%	SC2-473500-M	SMD 0603	2	C26 C27		
43	0.1uF 50V +80%/-20%	SC2-104500-Z	SMD 0603	57	C10 C14 C21 C29 C38 C39 C45 C49 CB1 CB2 CB3 CB4 CB5 CB6 CB7 CB8 CB9 CB10 CB11 CB12 CB13 CB14 CB15 CB16 CB18 CB19 CB21 CB22 CB23 CB24 CB25 CB26 CB27 CB28 CB29 CB30 CB32 CB35 CB36 CB37 CB40 CB41 CB47 CB48 CB49 CB50 CB58 CB60 CB61 CB62 CB64 CB66 CB67 CB68 CB69 CB88 CB160		

## Bill of material of DCL34MK89D Complete Loader

Item	Value	Part No	Package	Quantity		Vender	Note
44	0.47uF 50V ±20%	SC2-474500-M	SMD 0603	1	C11		
45	1uF 50V ±20%	SC2-105500-M	SMD 0603	5	C32 C33 C34 C35 C36		
<b>Electrolytic Capacitors</b>							
46	10uF 16V +80%/-20%	DC3-106160-Z	φ4mm X 8mm	8	CE1 CE7 CE15 CE22 CE23 CE30 CE31CE34		
47	47uF 16V +80%/-20%	DC3-476160-Z	φ5mm X 8mm	12	CE5 CE11 CE12 CE13 CE14 CE16 CE17 CE18 CE20 CE21 CE24 CE25		
48	220uF10V +80%/-20%	DC3-227100-Z	φ6mm X 8mm	8	CE3 CE6 CE8 CE9 CE10 CE19 CE26 CE32		
<b>Inductors</b>							
49	Chip Ferrite Bead 600@100MHz	SL0-601003-0	SMD 0805	16	L2 L5 L6 L7 L8 L12 L14 L11 L17 L18 L19 L21 L26 L30 L3 L9 L10		
50	Chip Ferrite Bead 600@100MHz	SL0-601002-0	SMD 0603	6	FB1 FB2 FB3 FB4 FB5 FB6		
51	Ferrite Bead	DL4-601014-0	DIP	1	L13		
52	10uH ±10%	DL2-100000-K	AXIAL 0.3	2	L15 L16		
<b>Crystal Oscillator</b>							
53	27.000MHz ±30ppm Fundamental	EE0-00027M-0		1	Y1		
<b>Connectors</b>							
54	Header 5 Pin 2.0mm Pitch with Housing	J1A-005020- 3		1	CN9		
55	Header 6 Pin 2.0mm Pitch with Housing	J1A-006020- 3		1	CN3		
56	Header 12 Pin 2.0mm Pitch with Housing	J1A-012020-1		1	CN6		
57	Header 13 Pin 2.0mm Pitch with Housing	J1A-013020-1		1	CN8		
58	Header 14Pin 2.0mm Pitch with Housing	J1A-014020-1		1	CN7		
59	Header 6 Pin 2.54mm Pitch with Housing	J1A-006025-1		1	CON1		
60	Header5 Pin 2.54mm Pitch with Housing	J1A-005025-1		1	CN1		
61	24 Pin 0.5mm Pitch FFC Connector	J1B-024005-1		1	CN5		

## Bill of material of DCL34MK89D Complete Loader

Item	Value	Part No	Package	Quantity		Vender	Note
<b>Discrete Semiconductors</b>							
62	Diode 1N4148	SD2-IN4148-0	SMD	1	D3		
63	Transistor 2N3904	SQ2-003904-0	SOT-23	5	Q2 Q8 Q9 Q10 Q11		
64	Transistor 2N3906	SQ3-003906-0	SOT-23	7	Q1 Q7 Q13 Q14 Q17 Q18 Q19		
65	Transistor 8550D	DQ3-008550-0	TO-92	2	Q22 Q23		
66	Transistor 8050D	DQ2-008050-0	TO-92	2	Q20 Q21		
67	Transistor 8550D	SQ3-008550-0	SOT-23	2	Q5 Q6		
68	MOSFET 2SK3018 ROHM	SQ3-003018-0	SC-70	2	Q3 Q4		
<b>Ics</b>							
69	MT1389QE-D Version	ICS-1389QE-D	LQFP216	1	U2		
70	A29040L-70(5V)/A29040BL-70(5V)	ICS-A29040-0	PLCC32	0			
71	MX26LV800BTC-55	ICS-26L800-0	TSOP48	1			
72	HY57V161610ET-7/K4S161622H-TC60	ICS-161610-0/ ICS-161622-0	TSOP50	1			
73	UTC LMV358/PTC MC34072/PT2308-S	ICS-000358-0/ ICS-034072-0/ ICS-PT2308-0	SOP8	1	U10		
74	AT24C02 or Equivalent 2K bit EEPROM	ICS-024C02-0	SOP8	1	U9	MXT	
75	BA5954FP or Equivalent(CMD5954/IP5954)	ICS-BA5954-0	HSOP28	1	U3	MXT	
76	AZ1117H-1.8V	ICS-111718-0	SOT-223	1	U1	MXT	
77	AZ1117H-3.3	ICS-111733-0	SOT-223	1	U5	MXT	
<b>PCB</b>							
78	Granger - 89D Revision A3B4 1.6mm	P02-5189A3-4	137mmx86mm	1		MXT	